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ABSTRACT

Based on the results of a survey distributed to all New York State public and non-public elementary and secondary schools, this publication presents a scenario of the current state of use of microcomputers and related equipment in those schools, and provides data and a context for a series of subsequent publications. The 20 data tables that display the survey's findings are divided into two content areas--hardware acquisition, availability, and use; and software acquisition and use. Survey findings are divided into public, non-public, and total categories; a listing of separate data for New York City is also provided. Survey topics include: (1) availability and use of microcomputer terminals in schools; (2) percent distribution of microcomputers, by brand name, in schools; (3) ranking of reasons for selecting specific microcomputers; (4) percentage of microcomputers and terminals solely dedicated to selected applications; (5) source of software/courseware owned by schools; (6) frequency of use of instructional software by curriculum; (7) distribution of instructional software by curriculum area and instructional strategy; (8) terminal or microcomputer programs used by students and teachers; (9) ranking of reasons for selecting specific microcomputer software; (10) ranking of criteria used for evaluating effectiveness of microcomputer software; (11) administrative/management functions supported by microcomputer or terminal courseware; and (12) ranking of reasons for selecting microcomputer administrative software. (JB)

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SURVEY OF COMPUTER USE

SPRING 1983

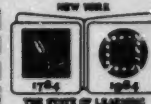
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OVERVIEW

The use of computers, most notably microcomputers and minicomputers, for a broad array of school activities has been increasing at an exponential rate during the past several years. Effective Department leadership and support to local education agencies in this area must be based, in part, on a comprehensive and credible body of knowledge related to their current state of use. Adequate information is needed to support a variety of Department initiatives that will be directed to the effective and equitable use of the new technologies. To meet this goal, a survey was conducted to establish baseline data that could be used to generate information on the current level and nature of computer use by elementary and secondary schools in New York State.

During the latter part of the 1982-83 school year, the Center for Learning Technologies requested the Department's Information Center on Education (ICE) to conduct this survey. The survey was distributed to all public and nonpublic elementary and secondary schools in late April and responses were accepted from schools through the end of June. Collection of data, creation of data files and definition of output were coordinated by the Information Center.

The survey focused on the use of computers and related equipment. Data were collected on both the numbers and types of microcomputers and terminals used by elementary and secondary schools as well as the various ways the equipment was being used. In all likelihood, the acquisition of equipment will continue to increase rapidly over the next few years and the most relevant and productive leadership role for the Department will be in providing assistance in the effective use of that equipment.

The intent of this overview publication is to present a general scenario of the current state of use of microcomputers and related equipment in public and nonpublic elementary and secondary schools and to provide a context for a series of subsequent publications that will deal with specific issues. While these later monographs will use data from the survey at a much greater level of detail, they will all relate to the perspectives, policy and general directions developed from this overview.

It is important to have some understanding of the survey methodology, the terms used and the degree of representativeness of the data before proceeding to analysis of the data.

Methodology - The survey was conducted on the universe of public and nonpublic elementary and secondary schools rather than on a sample basis. The number and comprehensive nature of questions asked on the survey, combined with the numbers of variables by which data are analyzed, would have made sample selection extremely complex. In addition, the resultant number of schools selected for a sample would have been very large and the data collection process only slightly less cumbersome and time-consuming. Universe data also broadens the utility of the information collected. For example, the large percentage of returns permits the school level data to be used for inventory purposes and for the targeting of support for specific program initiatives.

Boards of Cooperative Educational Services (BOCES) were not included in the survey since fairly detailed data are already available on computer hardware installations at these sites. In addition, BOCES are considered to be service providers rather than users of technology for purposes intrinsic to the organization. Further publications will contain data on BOCES, where appropriate.

Nonpublic schools were included in the survey to insure that comparable data would be available across educational sectors so that issues common to all schools could be addressed using survey results.

Definition of Terms - For the most part, the terminology used in the survey is self-explanatory. The term "microcomputer" as used in the survey was intended to mean any self-contained computing equipment that is housed within the schools' physical plant. "Terminals" were defined as those devices through which access can be made to computing facilities housed either inside or outside of the school building.

The terms "courseware" and "software" were used interchangeably in the survey with the intent that all programs used on computer hardware were to be counted in the survey.

Responses to Survey, Validity of Response - As of August 1983 over 75% of all public and nonpublic schools had responded to the survey. Given the short time-frame for the survey and the length of the data collection instrument, the survey response is considered to be excellent and the resultant data analyses to be highly representative of the actual school environment. No issues of statistical validity are relevant to any of the data presented in this overview publication and none are anticipated in the more detailed analyses planned for subsequent publications. Any instances of possible nonresponse bias will be duly noted.

Nearly 83% of all public schools responded to the survey and nearly 65% of all nonpublic schools responded. The proportion of nonresponding schools was evenly distributed across all geographic areas of the State.

This survey was not intended to be a full description of the technologies environment existing in the schools of the State. Rather, its purpose was to collect baseline data for use by the Center for Learning Technologies in guiding policy formulation and service-oriented initiatives. At the same time, data should have great utility and relevance to other offices both within and outside of the Department. Within the constraints of current fiscal and human resources, the Center for Learning Technologies will try to be as responsive as possible to requests for data from the survey.

STATUS OF COMPUTER USE

I. Hardware: Acquisition, Availability and Use

As shown in Table 1, nearly 25,000 microcomputers and 4,300 terminals were housed in the State's public and nonpublic elementary and secondary schools in the spring of 1983; more than 670,000 students and 29,000 teachers

made use of this equipment. For the State as a whole, public schools generally represent between 80 and 90 percent of each category shown while, in the "Big 5" cities, the public school proportions are somewhat lower.

To assess the magnitude of use of microcomputers, two sets of ratios were calculated and are displayed in Table 2 (Total State) and Table 3 ("Big 5" Cities). The first set of ratios used as its base the enrollment (and number of teachers) in those schools that actually had microcomputers/terminals. The second set of ratios used as its base the enrollment and staff in all of the State's elementary and secondary schools. Examining Table 2, it can be seen that, in schools that have hardware, there is one microcomputer for every 99 public school students and one microcomputer for every 70 nonpublic students. In those same schools, 24 percent of public school students and 29 percent of nonpublic school students use the microcomputers. Across all schools of the State, about 18 percent of public and 16 percent of nonpublic school students use microcomputers in school. Ratios of availability and use in the "Big 5" cities are generally less favorable than in the State as a whole.

Table 4 presents a percent distribution of microcomputers by brand name while Table 5 displays rankings of the reasons cited for selecting specific microcomputers. In general, 9 out of every 10 microcomputers in the State were manufactured by one of three companies, viz., Apple, Commodore and TRS. The four most important reasons for making such selections were: cost; availability of software; recommendation by other users and system expandability.

II. Software: Acquisition and Use

The types of software acquired by schools define, in large measure, the use of equipment. For this reason, a major portion of the survey was dedicated to obtaining information on the applications for microcomputers and related equipment. This section of the report presents that baseline information.

As can be seen in Table 6, the survey showed that microcomputers and terminals were used predominantly for instructional applications. Nearly 85 percent of the microcomputers in public and nonpublic schools were reported as being solely dedicated to instructional applications; more than 75 percent of the terminals were so classified. Slightly more than 2 percent of the microcomputers and 16 percent of the terminals were dedicated solely to administrative applications.

Table 7 displays information on the source of software/courseware used by the schools. For the total state and in the "Big 5" cities, two-thirds of the software is obtained from commercial vendors; nonpublic schools purchase such materials at a slightly higher rate. Local education agency and BOCES staff develop most of the remainder of the software used in the schools.

Instructional software is available in varying quantities for all curriculum areas and encompasses a number of different instructional strategies. The most frequently used instructional software was in the area of mathematics (69 percent). English, reading, science and social studies were

also frequently cited, with more than one-third of the schools reporting use of instructional software in these areas. (See Table 8.)

In most curriculum areas, the predominate instructional strategy encompassed by the related software/courseware was drill and practice. At the same time, software in all curriculum areas also makes use of problem solving, simulation and tutorial instructional strategies.

It is interesting to note, in examining Table 9, that some 20 to 30 percent of the software in use was outside of the standard curriculum areas (e.g., English, mathematics, foreign language, etc.). In all likelihood, that software is multidisciplinary in nature or oriented toward testing rather than relating to a specific instructional area or strategy.

The survey also sought information on the use by students and teachers of several commercially developed software packages such as CCC (Computer Curriculum Corporation), GIS (Guidance Information System) and MECC (Minnesota Educational Computing Consortium). As shown in Table 10, none of these proprietary systems were widely used.

In reporting reasons for selecting instructional software, both public and nonpublic schools were consistent in their responses (Table 11). Content area need was deemed most important followed by hardware compatibility, correlation with other curriculum materials and cost. As was the case with reasons given for selecting hardware, survey respondents ranked advertising as the least important reason for selecting instructional software.

Table 12 presents a ranking of the criteria used for evaluating the effectiveness of microcomputer software. It can be seen that the criteria deemed most important in this area are as pragmatic as the reasons given for initially selecting the software. Most important was student interest level (motivational quality) followed, in order, by verbal recommendation (presumably by individuals acquainted with the product) and performance on teacher-made tests. Interestingly, saving money was ranked last by both public and nonpublic school respondents.

As noted earlier, 2 percent of the microcomputers and 12 percent of the terminals were used solely for administrative applications. An additional 11 percent of the microcomputers and 17 percent of the terminals are available for both instructional and administrative applications (see Table 6). These relatively low usage rates reflect, at least in part, the reliance of schools on larger data processing hardware configurations, such as the New York State School Computer Services System (NYSSCSS), for support of administrative information management. While no trend data are available on the acquisition of microcomputers for administrative and management purposes, there is evidence that equipment of this type has limited capacity for handling the large files required for these applications. Such a conclusion is supported by the information contained in Table 13 which shows relatively low frequency of use of microcomputers for administrative and management functions.

Finally, the survey sought information on the most important reasons for selecting microcomputer administrative software. As can be seen in Table 14, the three most important criteria were hardware compatibility, relationship to the area of need and cost. Advertising was again ranked very low in order of importance.

TABLE 1
 AVAILABILITY AND USE OF MICROCOMPUTERS/TERMINALS
 IN PUBLIC AND NONPUBLIC SCHOOLS

Category	Total State			"Big 5" Cities*		
	Total	Public	Nonpublic	Total	Public	Nonpublic
Number of:						
Microcomputers	24,580	20,103	4,477	7,221	4,648	2,573
Terminals	4,276	3,892	384	1,247	976	271
Number of students using:						
Microcomputers	568,697	478,528	90,169	152,210	102,751	49,459
Terminals	103,700	97,986	5,714	21,295	17,019	4,276
Number of teachers using:						
Microcomputers	25,796	21,679	4,117	5,392	3,322	2,070
Terminals	3,549	3,262	287	1,004	793	211

*Buffalo, New York, Rochester, Syracuse and Yonkers.

TABLE 2
RATIOS OF AVAILABILITY AND USE OF MICROCOMPUTERS/TERMINALS
IN PUBLIC AND NONPUBLIC SCHOOLS
TOTAL STATE

Category	Microcomputer			Terminals		
	Total	Public	Nonpublic	Total	Public	Nonpublic
In schools with hardware:						
Ratio of hardware to students	1:94	1:99	1:70	1:200	1:207	1:125
Students using as a percent of enrollment	24.6%	24.0%	28.8%	12.1%	12.1%	11.9%
Teachers using as a percent of total teachers	21.3%	20.3%	28.6%	9.9%	9.6%	16.7%
In all schools:						
Ratio of hardware to students	1:132	1:133	1:125	1:759	1:690	1:1460
Students using as a percent of enrollment	17.5%	17.8%	16.1%	3.2%	3.7%	1.0%
Teachers using as a percent of total teachers	13.1%	13.4%	11.5%	1.8%	2.0%	0.8%

TABLE 3
RATIOS OF AVAILABILITY AND USE OF MICROCOMPUTERS/TERMINALS
IN PUBLIC AND NONPUBLIC SCHOOLS
"BIG 5" CITIES*

Category	Microcomputers			Terminals		
	Total	Public	Nonpublic	Total	Public	Nonpublic
In schools with hardware:						
Ratio of hardware to students	1:122	1:151	1:70	1:232	1:260	1:131
Students using as a percent of enrollment	18.4%	14.7%	27.4%	7.4%	6.7%	12.1%
Teachers using as a percent of total teachers	12.8%	9.7%	26.3%	8.6%	7.5%	18.0%
In all schools:						
Ratio of hardware to students	1:190	1:223	1:132	1:1102	1:1061	1:1251
Students using as a percent of enrollment	11.1%	9.9%	14.6%	1.6%	1.6%	1.3%
Teachers using as a percent of total teachers	7.0%	5.8%	10.3%	1.3%	1.4%	1.1%

*Buffalo, New York, Rochester, Syracuse and Yonkers.

TABLE 4
PERCENT DISTRIBUTION OF MICROCOMPUTERS, BY BRAND NAME,
IN PUBLIC AND NONPUBLIC SCHOOLS

Brand Name	Total State			"Big 5" Cities*		
	Total	Public	Nonpublic	Total	Public	Nonpublic
Apple	25.6%	27.0%	19.3%	15.3%	13.8%	17.7%
Atari	1.5	1.1	3.0	1.7	0.7	3.3
Commodore	38.0	38.5	35.8	33.2	32.6	34.3
Franklin Ace	1.1	1.3	0.6	0.2	0.3	0.1
IBM	0.8	0.6	1.8	1.1	0.2	2.6
NEC	0.1	0.1	—	0.2	0.3	—
Osborne	**	**	**	—	—	—
Sinclair	0.3	0.2	1.0	0.2	**	0.4
Texas Instrument	2.9	2.6	4.2	4.2	5.0	2.9
TRS	26.7	25.9	30.1	39.1	42.5	33.4
Other	3.0	2.7	4.2	4.8	4.5	5.2

*Buffalo, New York, Rochester, Syracuse and Yonkers.

**Less than 0.1%.

TABLE 5
RANKING OF REASONS FOR SELECTING SPECIFIC MICROCOMPUTERS

	Rank					
	Total State			"Big 5" Cities*		
	All Schools	Public Schools	Nonpublic Schools	All Schools	Public Schools	Nonpublic Schools
Cost considerations	1	1	1	1	1	2
Has the most software available	2	2	3	4	3	4
Recommended by others	3	3	2	2	2	1
Expandability of system	4	4	4	3	4	3
Availability of service	5	5	5	5	5	5
Required for specific software/courseware	6	6	6	6	6	6
Range of peripherals	7	7	8	8	9	8
Gift/long-range loan	8	8	7	7	7	7
Demonstration by manufacturer	9	9	9	9	8	9
Advertisement/Promotional	10	10	10	10	10	10

*Buffalo, New York, Rochester, Syracuse and Yonkers

TABLE 6
PERCENTAGE OF MICROCOMPUTERS AND TERMINALS SOLELY
DEDICATED TO SELECTED APPLICATIONS

Type of School	Instruction		Administrative		Word Processing	
	Micros	Terminals	Micros	Terminals	Micros	Terminals
Total State	84.6	75.4	2.3	16.0	2.4	2.0
Public	84.6	76.7	2.1	15.7	2.4	2.0
Nonpublic	84.7	62.0	3.3	19.3	2.5	1.6
"Big 5" Cities*	86.6	67.8	2.5	13.4	1.7	1.0
Public	87.6	69.3	2.3	13.1	1.2	.9
Nonpublic	84.8	62.4	2.9	14.4	2.6	1.1

*Buffalo, New York, Rochester, Syracuse and Yonkers.

TABLE 7

SOURCE OF SOFTWARE/COURSEWARE OWNED BY SCHOOLS

Software/Courseware Developed By:	Schools Indicating That Courseware/Software Were Developed by Selected Agencies as percent of Schools Owning Courseware/Software					
	Total State			"Big 5" Cities*		
	Total	Public	Nonpublic	Total	Public	Nonpublic
Teachers or Other Local Personnel	17%	17%	17%	22%	26%	16%
BOCES	8	8	7	2	1	4
Other School Districts	4	4	3	3	3	1
New York State Education Department	0	0	0	0	0	0
Colleges and Universities	1	1	2	1	1	2
Other Public Agencies	3	4	2	2	3	2
Commercial Vendors	66	65	70	69	66	74

*Buffalo, New York, Rochester, Syracuse and Yonkers.

TABLE 8
FREQUENCY OF USE OF INSTRUCTIONAL SOFTWARE
BY CURRICULUM AREA

Curriculum Area	Public Schools	Nonpublic Schools	Total
English	46.9%	40.3%	45.4%
Mathematics	71.7	58.6	68.6
Reading	47.4	35.4	44.6
Science	38.2	26.6	35.4
Social Studies	37.5	24.3	34.4
Foreign Language	10.5	7.1	9.7
Occupational Education	11.4	6.3	10.2
Special Education	8.9	4.2	7.8
Other Areas	30.6	28.3	30.0

Note: Percents are based on the total number of schools using curriculum.

TABLE 9

DISTRIBUTION OF INSTRUCTIONAL SOFTWARE
BY CURRICULUM AREA AND INSTRUCTIONAL STRATEGY

PUBLIC SCHOOLS

Curriculum Area	Instructional Strategy			
	Problem Solving	Simulation Game	Tutorial	Drill And Practice
English	7.6%	10.8%	27.3%	54.4%
Mathematics	17.3	15.4	20.4	46.9
Reading	9.4	10.3	28.8	51.5
Science	22.5	27.5	24.2	25.7
Social Studies	15.5	43.4	13.7	27.4
Foreign Languages	2.8	9.1	25.8	62.2
Occupational Education	34.8	14.7	23.2	27.3
Special Education	10.8	15.4	25.1	48.8
Other Areas	21.8	29.9	22.7	25.6

NONPUBLIC SCHOOLS

Curriculum Area	Instructional Strategy			
	Problem Solving	Simulation Game	Tutorial	Drill And Practice
English	6.2%	8.4%	28.1%	57.3%
Mathematics	21.8	15.7	19.2	43.4
Reading	12.2	16.0	26.6	45.2
Science	21.2	25.3	29.4	24.0
Social Studies	6.9	34.5	22.6	35.9
Foreign Languages	1.5	12.4	20.8	65.3
Occupational Education	27.4	11.0	28.8	32.9
Special Education	18.7	22.5	25.3	33.5
Other Areas	19.7	25.3	30.5	24.6

TOTAL PUBLIC AND NONPUBLIC

Curriculum Area	Instructional Strategy			
	Problem Solving	Simulation Game	Tutorial	Drill And Practice
English	7.4%	10.4%	27.4%	54.8%
Mathematics	17.8	15.4	20.2	46.6
Reading	9.7	11.0	28.6	50.8
Science	22.3	27.2	25.0	25.5
Social Studies	14.3	42.2	14.9	28.6
Foreign Languages	2.7	9.8	25.2	62.6
Occupational Education	34.2	14.4	23.6	27.7
Special Education	11.3	15.8	25.1	47.7
Other Areas	21.4	29.1	24.0	25.4

TABLE 10

TERMINAL OR MICROCOMPUTER PROGRAMS USED BY
STUDENTS AND TEACHERS

Program and Users	Schools Indicating Use											
	Total State						"Big 5" Cities*					
	Total		Public		Nonpublic		Total		Public		Nonpublic	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CCC (Computer Curriculum Corp.):												
Students Only	156	4.3%	150	5.4%	6	0.7%	30	2.8%	27	4.2%	3	0.7%
Teachers Only	103	2.8	99	3.6	4	0.5	20	1.9	18	2.8	2	0.5
Students and Teachers	103	2.8	99	3.6	4	0.5	20	1.9	18	2.8	2	0.5
GIS (Guidance Information System):												
Students Only	406	11.1	393	14.1	13	1.5	40	3.8	32	4.9	8	1.9
Teachers Only	301	8.2	289	10.4	12	1.4	34	3.2	26	4.0	8	1.9
Students and Teachers	285	7.8	274	9.8	11	1.3	29	2.7	22	3.4	7	1.7
MECC:												
Students Only	653	17.8	593	21.3	60	6.8	69	6.5	47	7.2	22	5.3
Teachers Only	484	13.2	442	15.9	42	4.8	52	4.9	38	5.8	14	3.4
Students and Teachers	448	12.2	413	14.8	35	4.0	46	4.3	33	5.1	13	3.1
LOGO:												
Students Only	540	14.8	430	15.5	110	12.6	143	13.4	85	13.1	58	14.0
Teachers Only	401	11.0	323	11.6	78	8.9	103	9.7	65	10.0	38	9.2
Students and Teachers	355	9.7	285	10.2	70	8.0	97	9.1	60	9.2	37	8.9
Other:												
Students Only	255	7.0	197	7.1	58	6.6	87	8.2	52	8.0	35	8.4
Teachers Only	206	5.6	163	5.9	43	4.9	73	6.9	45	6.9	28	6.8
Students and Teachers	185	5.1	144	5.2	41	4.7	66	6.2	39	6.0	27	6.5

*Buffalo, New York, Rochester, Syracuse and Yonkers.

TABLE 11

RANKING OF REASONS FOR
SELECTING MICROCOMPUTER INSTRUCTIONAL
SOFTWARE

Reasons	Ranking of Reasons		
	Public Schools	Nonpublic Schools	Total
Content area needs	1	1	1
Cost	4	4	4
Relationship to State Curriculum	6	6	6
Advertisement	9	9	9
Recommendation from another school	5	5	5
Published reviews	7	7.5	7
Correlated with texts	8	7.5	8
Correlated with other curriculum materials	3	3	3
Fits hardware on hand	2	2	2

TABLE 12

RANKING OF CRITERIA USED FOR
EVALUATING EFFECTIVENESS OF
MICROCOMPUTER SOFTWARE

Reasons	Ranking of Reasons		
	Public Schools	Nonpublic Schools	Total
Verbal recommendations	2	3	2
Student performance via teacher made tests	3	2	3
Student performance via State tests	5	6	5
Student performance via nationally normed tests	6	5	6
Affective Value (interest level, motivation)	1	1	1
Saves Time	4	4	4
Saves money	7	7	7

TABLE 13

ADMINISTRATIVE/MANAGEMENT FUNCTIONS SUPPORTED BY
MICROCOMPUTER OR TERMINAL SOFTWARE/COURSEWARE

Function	Schools Indicating Support											
	Total State						"Big 5" Cities*					
	Total		Public		Nonpublic		Total		Public		Nonpublic	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Network Access	203	5.5%	175	6.3%	28	3.2%	61	5.7%	48	7.4%	13	3.1%
Testing	389	10.6	338	12.1	51	5.8	98	9.2	75	11.5	23	5.6
Information Dissemination	417	11.4	329	11.8	88	10.0	150	14.1	110	16.9	40	9.7
Electronic Newsletter	66	1.8	51	1.8	15	1.7	24	2.3	18	2.8	6	1.4
Collection Management (On-line Library Resource)	133	3.6	114	4.1	19	2.2	43	4.0	36	5.5	7	1.7
Grade Reporting	461	12.6	382	13.7	79	9.0	148	13.9	108	16.6	40	9.7
Attendance	462	12.6	403	14.5	59	6.7	143	13.4	113	17.4	30	7.2
Scheduling	358	9.9	296	10.6	62	7.1	107	10.1	78	12.0	29	7.0
Payroll	255	7.0	206	7.4	49	5.6	35	3.3	10	1.5	25	6.0
Student Historical	386	10.6	305	11.0	81	9.2	152	14.3	115	17.7	37	8.9
Word Processing	541	14.8	416	15.0	125	14.3	125	11.7	70	10.8	55	13.3
Other	314	8.6	239	8.6	75	8.6	76	7.1	40	6.2	36	8.7

*Buffalo, New York, Rochester, Syracuse and Yonkers.

TABLE 14

RANKING OF REASONS FOR
SELECTING MICROCOMPUTER ADMINISTRATIVE
SOFTWARE

Reasons	Ranking of Reasons		
	Public Schools	Nonpublic Schools	Total
Content area needs	2	3	2
Cost	3	2	3
Relationship to State Curriculum	6	7.5	6
Advertisement	8	6	8
Recommendation from another school	4	4	4
Published reviews	5	5	5
Correlated with texts	9	9	9
Correlated with curriculum materials	7	7.5	7
Fits hardware on hand	1	1	1

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS
TOTAL STATE
FALL 1984

Percent of Students on Public Assistance	Number of Schools	Number of Microcomputers per School	Number of Students per Microcomputer	Percent of Students Using Microcomputers Regularly*
0	88	16	28	62.3%
1 - 10%	1,521	16	38	49.7
11 - 20%	715	17	40	44.5
21 - 30%	436	15	44	40.8
31 - 40%	327	12	53	37.2
41 - 50%	155	11	61	30.8
51 - 60%	127	10	81	29.0
61 - 70%	118	8	85	27.0
71 - 80%	162	10	86	27.8
81 - 90%	155	8	98	23.5
91 - 100%	138	7	98	24.5
Total	3,942	14	46	41.3

* Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS
NEW YORK CITY

FALL 1984

Percent of Students on Public Assistance	Number of Schools	Number of Microcomputers per School	Number of Students per Microcomputer	Percent of Students Using Microcomputers Regularly*
0	1	10	117	71.1%
1 - 10%	91	14	63	40.0
11 - 20%	100	18	68	31.9
21 - 30%	97	14	73	30.3
31 - 40%	81	11	93	29.8
41 - 50%	69	12	82	24.5
51 - 60%	70	11	102	25.3
61 - 70%	81	8	104	25.1
71 - 80%	134	11	87	26.5
81 - 90%	136	8	100	23.3
91 - 100%	123	6	111	24.0
Total	983	11	85	28.1

* Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS
TOTAL STATE (EXCLUDING NEW YORK CITY)

FALL 1984

Percent of Students on Public Assistance	Number of Schools	Number of Microcomputers per School	Number of Students per Microcomputer	Percent of Students Using Microcomputers Regularly*
0	87	16	28	62.0%
1 - 10%	1,430	17	37	50.6
11 - 20%	615	16	35	48.8
21 - 30%	339	15	36	46.5
31 - 40%	246	13	42	42.1
41 - 50%	86	11	44	40.4
51 - 60%	57	9	51	40.1
61 - 70%	37	9	44	36.9
71 - 80%	28	8	73	38.5
81 - 90%	19	5	75	26.0
91 - 100%	15	9	20	40.7
Total	2,959	15	37	48.6

* Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

MICROCOMPUTER USE IN NEW YORK STATE NONPUBLIC SCHOOLS
TOTAL STATE
FALL 1984

Percent of Students on Public Assistance	Number of Schools	Number of Microcomputers per School	Number of Students per Microcomputer	Percent of Students Using Microcomputers Regularly*
0	781	5	34	41.0%
1 - 10%	1,008	7	42	39.7
11 - 20%	149	6	45	37.1
21 - 30%	90	4	68	21.0
31 - 40%	74	4	52	31.9
41 - 50%	40	4	48	37.4
51 - 60%	35	4	58	21.9
61 - 70%	46	3	73	32.7
71 - 80%	40	7	35	32.4
81 - 90%	52	2	95	20.3
91 - 100%	30	4	5	17.1
Total	2,345	6	42	37.7

* Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

MICROCOMPUTER USE IN NEW YORK STATE NONPUBLIC SCHOOLS
NEW YORK CITY
FALL 1984

Percent of Students on Public Assistance	Number of Schools	Number of Microcomputers per School	Number of Students per Microcomputer	Percent of Students Using Microcomputers Regularly*
0	227	6	36	34.9%
1 - 10%	399	8	49	30.0
11 - 20%	82	6	49	29.2
21 - 30%	46	4	103	10.5
31 - 40%	43	4	71	25.7
41 - 50%	23	3	51	32.7
51 - 60%	21	4	72	18.6
61 - 70%	28	3	79	32.1
71 - 80%	20	8	37	31.9
81 - 90%	36	2	124	16.0
91 - 100%	17	4	61	13.9
\ Total	942	6	50	28.7

* Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

MICROCOMPUTER USE IN NEW YORK STATE NONPUBLIC SCHOOLS
TOTAL STATE (EXCLUDING NEW YORK CITY)

FALL 1984

Percent of Students on Public Assistance	Number of Schools	Number of Microcomputers per School	Number of Students per Microcomputer	Percent of Students Using Microcomputers Regularly*
0	554	4	32	45.0%
1 - 10%	609	6	37	50.7
11 - 20%	67	5	39	53.7
21 - 30%	44	4	38	46.0
31 - 40%	31	4	25	55.8
41 - 50%	17	4	45	43.3
51 - 60%	14	3	33	34.9
61 - 70%	18	3	59	34.4
71 - 80%	20	6	31	33.1
81 - 90%	16	2	29	63.8
91 - 100%	13	4	36	24.3
Total	1,403	5	35	48.3

* Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.